

**\* Please Note:** By setting the header options, it is possible to set values that result in an invalid PDU. An invalid PDU will cause unpredictable results on the receiving phone. It is the user's responsibility to ensure that the header is formatted correctly.

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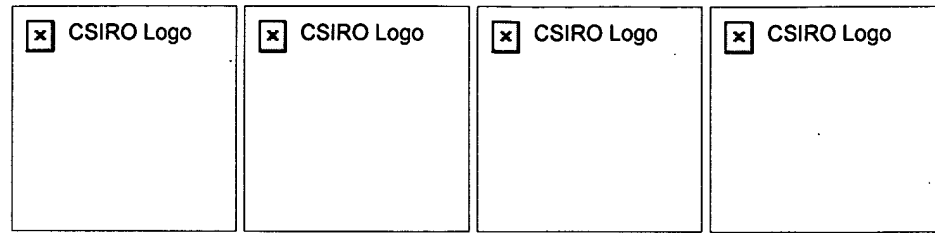
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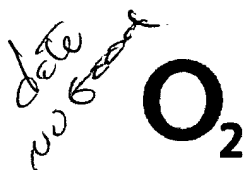
### Send an SMS Message

Destination Number:	<input type="text"/>		
Class:	<input checked="" type="radio"/> Use default behaviour of receiving terminal. <input type="radio"/> Display message immediately if possible. <input type="radio"/> Store the message in the mobile equipment. <input type="radio"/> Store the message in the SIM Card. <input type="radio"/> Send the message through any attached terminal equipment if possible.		
Validity Period:	5 minutes <input type="button" value="v"/>		
Header options: *			
	Bit	Code	Description
<input type="checkbox"/>	7	TP-RP	Indicates whether or not Reply Path exists
<input type="checkbox"/>	6	TP-UDHI	User Data Header Indicator. Indicates whether or not message content begins with a user header.
<input type="checkbox"/>	5	TP-SRI	Status Report Indicator. Indicates whether or not a status report is requested.
<input checked="" type="checkbox"/>	4	TP-VPF	Validity Period Format.
<input type="checkbox"/>	3	TP-MMS	More Messages to send (?)
<input type="checkbox"/>	2	TP-MTI	Message Type Indicator
<input checked="" type="checkbox"/>	1	0	
Encoding:	<input type="radio"/> Hexadecimal <input checked="" type="radio"/> ASCII Text		
Content:	<input type="text"/> 		
<input type="button" value="Send"/>			

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Ken Taylor December 2000



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## EzWAP How To

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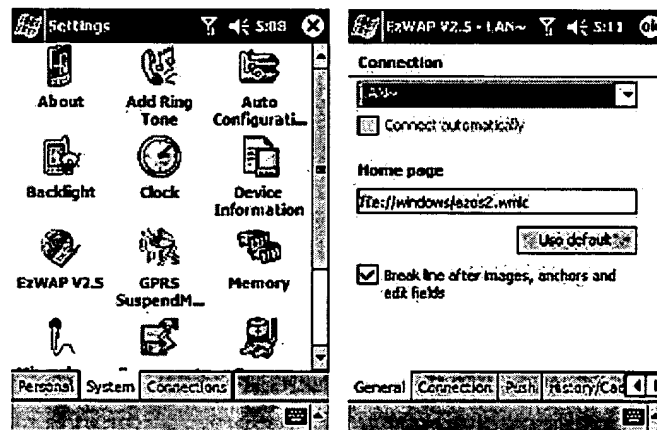
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## How to configure the EzWAP 2.5?

## 1. Go to Start &gt; Settings &gt; System tab &gt; EzWAP V2.5



## 2. Select the General tab to edit the general settings.

- Under "Connection", select the dial-up connection to be used.
- Check "Connect automatically" box if you want EzWAP to automatically activate the selected connection when needed.
- To change the default WML document that will load automatically as home page, enter a valid URL in the "Home page" field.  
Or,  
Tap "Use default" to select the default EzWAP page as the standard home page.
- Check "Break line after images, anchors and edit fields" box if you want a line feed to be automatically inserted after input fields, anchors and images.

## 3.

Select the "Connection" tab to provide technical details about your WAP connection.

Under Connection type, select one of the following options:

### Proxy

Select this option if your mobile phone network operator does not operate a WAP gateway today (please consult the operator for details) and if you want to use your regular Internet Service Provider to access WML-based sites.

- Complete the "Address" field with the IP Address of your service provider, for example: 192.168.59.51.

The screenshot shows the 'EzWAP' configuration window. At the top, it says 'EzWAP' and shows a signal strength indicator and a clock. Below this, the 'Connection type' section has three radio buttons: 'Proxy' (selected), 'Gateway', and 'None'. The 'Address' field is set to '192.168.59.51' and the 'Port' field is set to '80'. There are fields for 'User authentication' and 'Password'. Under 'Timeouts', 'Connection timeout (ms)' is set to '50' and 'Retries' is set to '5' x 'timeout' which is '100'. At the bottom, there are tabs for 'General', 'Connection', 'Push', 'History/Log', and 'New Tools Services'.

- Complete the "Port" field with the port number of the proxy, for example: 80. If applicable, complete the "User authentication" field with your personal account number and the "Password" field with the corresponding secret code.

### Gateway

Select this option if your mobile phone network operates a WAP gateway and you want to benefit from the additional services provided by your operator. Please consult the operator for details.

The screenshot shows the 'EzWAP' configuration window. At the top, it says 'EzWAP' and shows a signal strength indicator and a clock. Below this, the 'Connection type' section has three radio buttons: 'Proxy', 'Gateway' (selected), and 'None'. The 'Address' field is set to '192.168.59.51' and the 'Port' field is set to '9201'. There are checkboxes for 'Connectionless gateway' and 'WTLS secured connection'. Under 'Timeouts', 'Connection timeout (ms)' is set to '50' and 'Retries' is set to '5' x 'timeout' which is '100'. At the bottom, there are tabs for 'General', 'Connection', 'Push', 'History/Log', and 'New Tools Services'.

- Complete the "Address" field with the IP Address for the WAP gateway. This is a sequence of digits comprised of four integers separated by decimal points, for example: 192.168.59.51. This information can be found in the notice included in your operator's welcome pack.

- Complete the "Port" field with the port number used by the WAP gateway, for example: 9201.

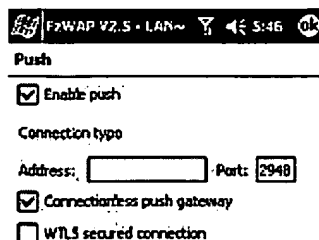
- Select the "Connectionless gateway" check box if the gateway works in connectionless mode.

- Select the "WTLS secured connection" check box if the gateway uses the WTLS technology for enhanced security over the wireless network.

### None

Select this option if you do not connect through a proxy or a gateway.

4. Under "Timeouts", specify the "Connection timeout" in milliseconds and the number and timeout of connection "Retries".
5. Select the "Push" tab to edit the Push options.



Push

☒ Enable push

Connection type

Address:  Port:

☒ Connectionless push gateway

☐ WTLS secured connection



History/Cache

- Select the "Enable push" check box if you want to enable push services, whereby on-the-fly messages such as latest traffic reports, stock quote updates, etc. are automatically delivered to your device.

Important : Push services must be enabled to be able to receive MMS messages.

- Complete the "Address" field with the IP Address for the push gateway. This is a sequence of digits comprised of four integers separated by decimal points, for example : 193.96.141.24. This information can be found in the notice included in the push operator's welcome pack.

- Complete the "Port" field with the port number used by the push gateway i.e., 2948 (connectionless push gateway), 2949 (connectionless push gateway with WTLS), 9120 (WTLS) or 9209 (no connectionless push gateway + no WTLS).

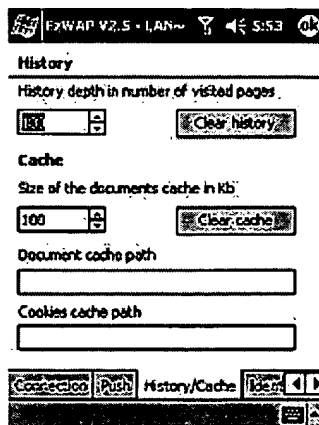
- Select the "Connectionless push gateway" check box if the push gateway works in connectionless mode.

- Select the "WTLS secured connection" check box if the push gateway uses the WTLS technology for enhanced security over the wireless network.

Note: Incoming push messages are immediately signaled by a popup in your micro-browser. You have the choice to accept it (i.e., read it or go the suggested site) or keep it for later. In the second case, a special icon will be displayed on the Home page, near the Location globe icon.

To adjust the history and cache settings?

1. In the EzWAP Tools menu, select Options....
2. Select the History/Cache tab.



History/Cache

History depth in number of visited pages

Cache

Size of the documents cache in Kb

Document cache path

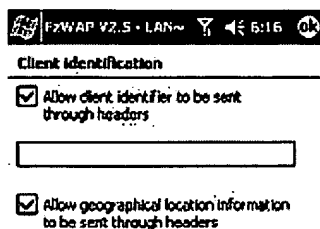
Cookies cache path

3. Under "History depth in number of visited pages", specify the number of navigation steps that must be available for the Forward and Backward options of your EzWAP microbrowser. If you want to reset the history content and start with an empty one, tap the "Clear history" button.
4. Under "Size of the document cache in Kb", adjust the cache size (in kilobytes). (In the example above, EzWAP uses 100Kb to avoid systematically reloading data from the network). If you want to reset the cache content and start with an empty one, tap the "Clear cache" button.

5. Complete the "Document cache path" with the full path of the cache on your mobile device.
6. Complete the "Cookies cache path" field with the full path for cookies on your mobile device.

To set the identification/localization options?

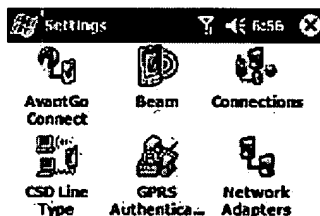
1. In the EzWAP "Tools" menu, select "Options...".
2. Select the "Identification" tab.



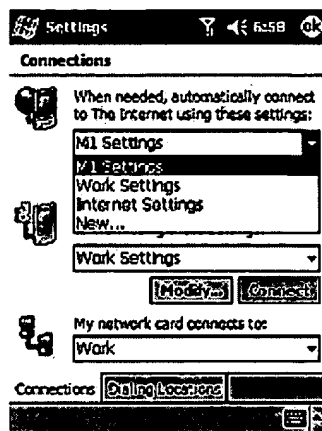
3. Select the first check box if you have a mobile subscriber ISDN (MSISDN) contract and you accept that your phone number be supplied to visited sites for customization purposes. Use the input text field to enter your phone number, including: country code, national destination code and subscriber number. For example: 852 987654321.
4. Note: Geographical location information is not supported in your xda.
5. Tap OK to save the new settings.

How to configure the connection for my MMS?

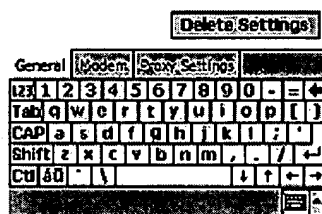
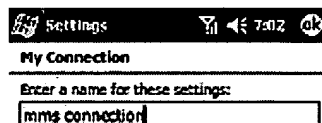
1. Go to Start > Settings > Connections tab > Connection icon



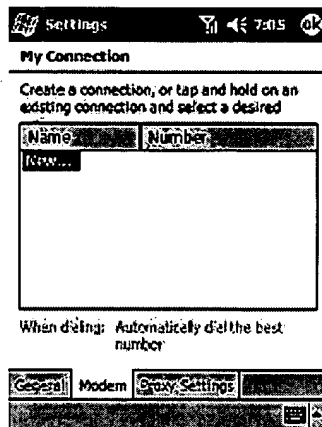
2. Under "When needed, automatically connect to The Internet using these settings:", select "New...".



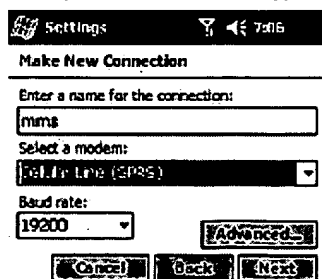
3. Under "Enter a name for these settings:", enter a new name for the connection.



4. Go to "Modem" tab, click on "New..."



5. Under "Enter a name for the connection", enter in the appropriate name for the mms setting, select the modem type and baud rate.



6. Click on "Advanced..."

7. Assign the specific IP addresses or server addresses according to your operators. Then click on "ok".

The left screenshot shows the 'Settings' screen with the 'Advanced' tab selected. The 'Use server-assigned IP address' option is selected. Below it, there are checkboxes for 'Use Slip', 'Use software compression', and 'Use IP header compression'. At the bottom, there is a 'TCP/IP' section with a 'Name Servers' field and a keyboard. The right screenshot shows the 'Settings' screen with the 'Advanced' tab selected. The 'Use specific server address' option is selected. Below it, there are fields for 'DNS', 'Alt DNS', 'WINS', and 'Alt WINS'. At the bottom, there is a 'TCP/IP' section with a 'Name Servers' field and a keyboard.

8. Click on "Next". Enter in the access point name or APN according to your operators.

The left screenshot shows the 'Settings' screen with the 'Make New Connection' tab selected. The 'Access point name' field is set to 'mms'. Below it, there is a 'Select a modem' dropdown menu set to 'GSM1: LINE (GPRS)'. The 'Baud rate' is set to '19200'. At the bottom, there are 'Cancel', 'Back', and 'Next' buttons. The right screenshot shows the 'Settings' screen with the 'Access point name' field set to 'mmspoint'. At the bottom, there are 'Cancel', 'Back', and 'Finish' buttons.

9. Then click on "Finish".

The left screenshot shows the 'Settings' screen with the 'My Connection' tab selected. It displays a list of connections with columns for 'Name' and 'Number'. The 'mms' connection is listed with the number '+0 ~ GPRS!mmspoint'. Below the list, there is a note: 'When dialing: Automatically dial the best number'. At the bottom, there are 'General', 'Modem', and 'Proxy Settings' tabs. The right screenshot shows the 'Settings' screen with the 'Connections' tab selected. It displays a list of connections with columns for 'Name' and 'Number'. The 'mms connection' is selected. Below the list, there are 'Modify' and 'Connect' buttons. At the bottom, there are 'Connections', 'Dialing', and 'Locations' tabs.

To configure the MMS services?

1. In the EzWAP "Tools" menu, select "Options..."
2. Select the mms connection that you have just created.



The screenshot shows the 'EzWAP' configuration interface. At the top, it says 'EzWAP' and '724'. Below this is a 'Connection' section with a dropdown menu set to 'GPRS'. There is a checkbox for 'Connect automatically' which is unchecked. Below that is a 'Home page' section with a text field containing 'file://windows/ezos2.wml' and a 'Use default' button. At the bottom of this section is a checked checkbox for 'Break line after images, anchors and edit fields'. Below the 'Connection' section are tabs for 'General', 'Connection', 'Push', and 'History/Cache'. The 'Connection' tab is currently selected.

3. Select the "MMS" tab to edit the MMS connection settings.

The screenshot shows the 'EzWAP V2.5 - 1.1A' configuration interface. Below the status bar is the 'MMS settings' section. It has a 'Message Server' field with the value 'http://dukt0329.dti-mic.net/mase'. Below that is a 'Sender address type' dropdown menu set to 'Phone Number'. At the bottom is a 'Sender address' field with the value '+6591234567'. Below the 'MMS settings' section are tabs for 'History/Cache', 'Identification', 'MMS', and 'M'. The 'MMS' tab is currently selected.

- Complete the "Message Server" field with the address of MMS server that is responsible for storing and handling the MMS messages. This information should have been supplied by your MMS service provider.

- In the "Sender address type" field, select the type of address that you will be using to send your MMS messages. This can be:

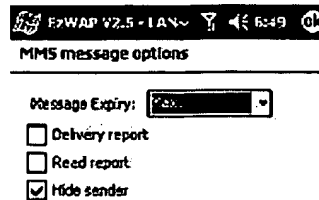
- a standard mobile "Phone Number", in the international format e.g.: +65-9123 4567
- IPV4 address, i.e. IP address version 4 with the following format: 192.168.168.1
- IPV6 address, i.e. IP address version 6 with the following format: 2002:3ee0:3972:00001::1
- standard E-Mail address, e.g. emma.lion@hotmail.com

- The "Sender display name" field is accessible only if you have selected E-Mail in the "Sender address type" field. Enter here the name that will be used to identify you with MMS message recipients.

- Complete the "Sender address" field with:

- Your mobile device's IP address if you have selected IPV4/IPV6 in the "Sender address type" field,
- Your email address if you have selected E-Mail in the "Sender address type" field
- Your mobile phone number if you have selected "Phone Number" in the "Sender address type" field.

4. Select the MMS Options tab to further edit the MMS options. (The MMS options that you specify here will be used as default settings for the creation of new messages. If you do not want the defaults to apply to a specific message when you create or edit it in the MMS section, you can always change the options at message level. The default values for future messages will remain unchanged.)



- In the "Validity" selection field, select the validity period for your MMS messages. For example, if you select "1 Day", messages will be deleted from the MMS Server after 1 day if they could not be sent to the recipient.

Note : With the Max. option, maximum validity time depends on the MMS server. Delivery report, read report and hide sender also depend on your network provider.

- Check the "Delivery report" field if you want EzWAP to display short reports indicating whether messages were delivered to their recipient(s).

- Check the "Read report" field if you want EzWAP to display short reports indicating whether messages were read by their recipient(s).

- Check the "Hide sender" field if you do not want your MMS recipients to know from whom the message is coming.

5. Tap OK to save the new settings.

To surf with EzWAP?

1. In the location field, enter the URL of the site that you want to access.

Or,

To access a local file, replace http: by file:

For example :

- file:c:\program files\ezos\ezwap\ezos.wmlc

- http://wap.ezos.com

Or,

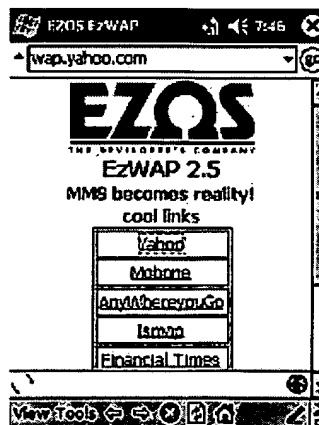
Tap the location selection box to select a recently visited site.

Note: If you tap the arrow next to the "url" field, the address will be replaced by the corresponding title information.

2. Press Enter.

Or,

Tap the go button (2) to launch the request.

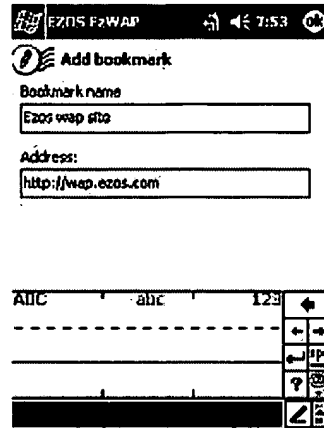


3. When the document is loaded, select the appropriate hyperlinks to browse through the available pages.

How to define bookmarks?

1. In the location box, enter the URL of the site for which you want to define a bookmark.
2. In the "Tools" menu, select "Bookmarks".
3. In the "Bookmarks" menu, select "Add..." to open the bookmark definition dialog box.
4. Type a name for the site in the "Bookmark name" field.
5. Tap OK to save the new bookmark.

(To access the site afterwards, choose the Tools > Bookmarks > View... menu sequence, then select the site in the bookmark list and tap OK.)

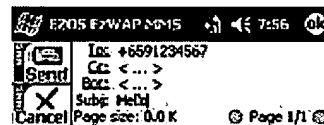


#### How to Send and Receive MMS?

##### Creating and Sending MMS Messages

MMS messages are enhanced SMS messages capable of handling multimedia objects, including formatted text, pictures and music. To be able to send and receive MMS messages you must have configured the MMS services in the MMS tab of the EzWAP options. MMS messages in EzWAP are organized in three folders, similar to email in MS Outlook.

1. In the Tools menus, select New MMS...



- Complete the To line with the recipient's phone number, IPV4/IPV6 or email address or select it from your Contacts by clicking on the To hyperlink.

- Complete the Cc line with the phone number, IPV4/IPV6 or email address of the persons that must receive a copy of your message, or select them from your Contacts by clicking on the Bcc hyperlink.

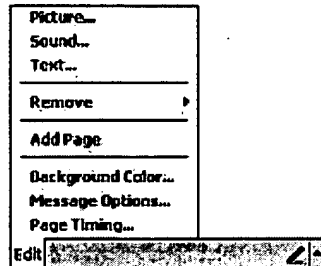
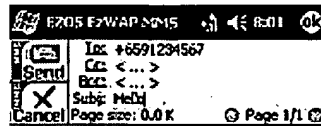
- Complete the Bcc line with the phone number, IPV4/IPV6 or email address of the persons that must receive a blind copy of your message, or select them from your Contacts by clicking on the Bcc hyperlink.

##### Notes:

- Difference between a Cc and a Bcc recipient is that Bcc recipients do not have their names displayed to the other recipients.
- For multiple To/Cc/Bcc recipients, use a semi-colon to separate each address.
- Addresses of various types (i.e., IP/phone/email) can be used for the same message.

- Complete the Subj line with a short description of your message subject.

2. To specify the background color for the message, tap the Edit menu, select Background Color, select a color and tap OK.
3. Select the first type of object that you want to design on the active page using the appropriate option in the Edit menu, i.e. Sound, Picture or Text.



4. If you have selected Sound, you can either :

- import an existing melody (\*.imy, \*.amr or \*.wav) from \My Documents\My Pictures folder.

To do so, select the melody file from the displayed file structure and tap OK.  
Or,

- create a brand new melody using the integrated sound editor, EzMELODY.

To do so, select the New menu and follow melody composition process below.  
Or,

- record a new sound using the microphone on your mobile device.

To do so, tap the red button in the menu bar, start speaking or playing music and click Stop when done.

If you have selected Picture, you can either :

- import an existing picture (\*.bmp, \*.gif, \*.jpg or \*.png) from \My Documents\My Pictures folder.

To do so, select the picture file from the displayed file structure and tap OK. (Note : the maximum guaranteed image resolution is 200 X 200 pixels. For larger images, EzWAP will prompt you for rescaling).  
Or,

- create a brand new picture using the integrated picture editor, EzPAINT.

To do so, select the New menu and follow the picture design process below.

If you have selected Text, you can either :

- type your text directly in the EzWAP Text Editor, edit its color and size in the Edit menu of the Text Editor and tap OK to save it.

Or,

- save your text as pre-defined text for future use.

To do so, tap the Edit menu, select Edit My Text Messages, and follow the pre-defined text creation process below.

Or,

- insert an existing, pre-defined text bit.

To do so, select the appropriate text in the My Text menu.

5. If you want to specify a start and/or end time for the picture and text objects that you have designed on the active MMS page, or for the whole page, select the Edit menu, select Page Timing, specify the respective durations and tap OK to save.

**EZOS EzWAP** 11:03

**Page Timing**

Page Duration:  second(s)

Item Duration:

Text0	Begin	End
Text0	0	0

second(s)

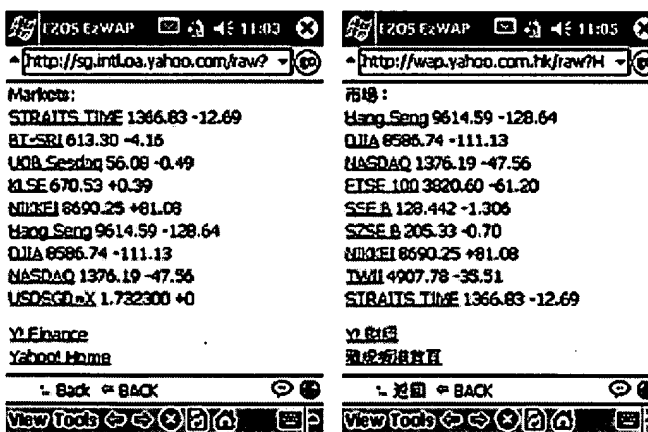


6. To add a new page to your message, tap the Edit menu, select Add Page and design your message as described in steps 3-5.
7. To edit the message validity, delivery, class or priority options, tap the Edit menu, select Message Options, specify the appropriate options and tap OK to save.
8. When the message is ready :

Tap the Send button in the message header to send it directly to the recipient  
 Or,  
 Tap OK to save it to your Unsent box if you do not want to send it now.

#### How to surf with EzWAP

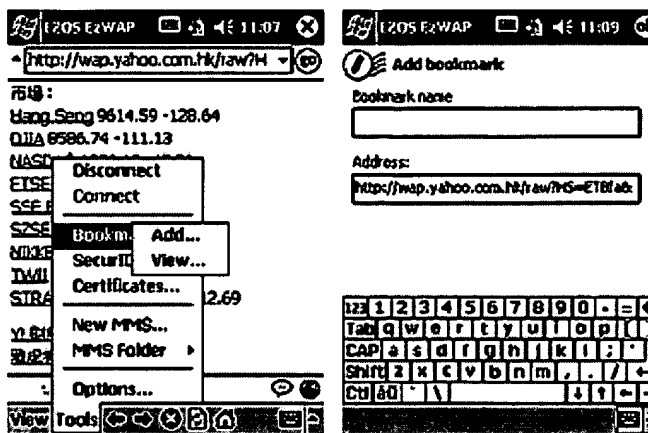
1. Enter url into the address bar



2. Tap go button to launch your request

#### How to bookmark a site?

1. Tap Tools > Bookmarks
2. Enter a bookmark name and address into bookmark page



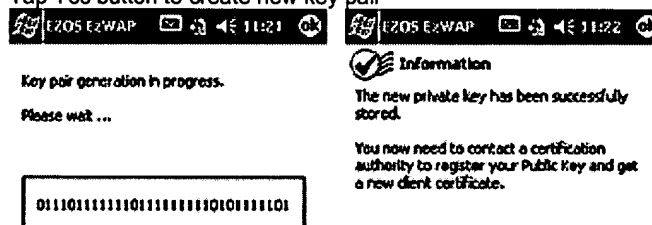
How to surf secured sites that require WTLS encryption?

1. Before you are able to surf secured site with WTLS you need to

- Generate key pair
- Create original user certificate
- Send original user certificate to secured site
- Obtain client certificate + CA certificate
- Import and activate CA and client certificate

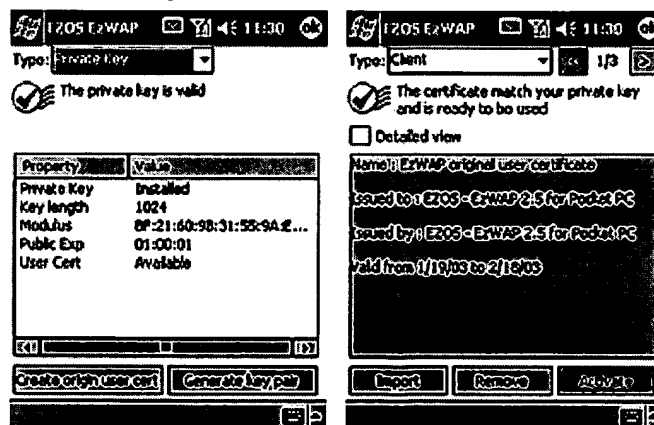
2. To generate a key pair

- Tap Tools > Certificates ...
- Select Private Key in the Type box
- Tap Generate key pair button
- Tap Yes button to create new key pair



- Tap OK when you see the message information you that the new private key has been successfully stored.

3. To create an original user certificate

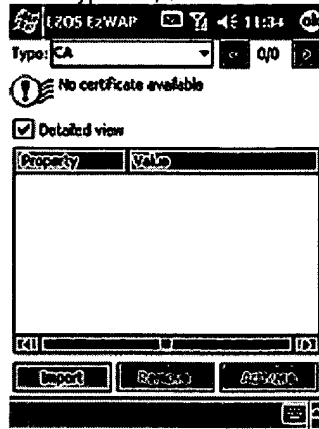


- Tap Create origin user cert button
- The new certificate is instantly appended to your client certificate list appear in a

page showing all valid clients

4. To activate a CA certificate

- a. Tap Tools > Certificates ...
- b. In the type box, select CA




- c. Tap Import to CA certificate you received from your CA
- d. Enter the 30-digit activation code that you have received and confirm.

## This short message is sent from a Nokia 6110 and contains a picture

This is an OTA (On The Air) bitmap.

Its documentation is downloadable from [Forum Nokia](#). Follow the "Messaging" -> "Smart Messaging" links.

PDU type	44	RP:0 (no reply path) <b>UDHI:1 (UD begins with a header)</b> SRI:0 (no status report will be returned) MMS:1 (no more messages) MTI:00 (SMS-deliver)
OA	0B 91 6302752852F1	length:11 digit type: international,E.164/E.163 number: 36 20 5782251
PID	00	PDU content: short message
DCS	F5	<b>data coding: 8 bit</b> message class: 1
SCTS	991012 114343 40	date: 99/01/21 time: 11:34:34 timezone: GMT+1
UDL	89	137 octets
UD	UDH	06 05 04 1583 1583 length of header: 6 octets information element type: NBS port addressing information element length: 4 octets destination port: CLI icon source port: CLI icon
	OTAr	00 48 0E 01 infofield: last octet, no compression, no palette, 8 bit, 0 animated icons width: 72 pixel height: 14 pixel depth: 1 ?
	bitmap data	3FF00110005B0001E8 7FF802A801A500021C 3FF80C470101000408 7FF808010081001C04 3FF008150081001304 7E10183F0058803A84 7DF030490064802C9C 7E501855002D80473C 3AD0082A8058404218 39B005010060C04930 105005BE0042203220 1A1007620046600C40 09E001BB003B900840 042000960001080EA0 



**Enhanced Messaging**

Just beyond text messaging



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**Messaging is Enhanced with Mobile Lifestreams**

Mobile messaging is evolving beyond text by taking a development path from SMS (Short Message Service)

to EMS (Enhanced Messaging Service) to MMS (Multimedia Messaging Service),

This website focuses upon EMS in particular.

The Enhanced Messaging Service (EMS) is the ability to send a combination of simple melodies, pictures, sounds, animations, modified text and SMS text as an integrated message for display on an EMS compliant mobile phone. There are many different potential combinations of these media. For example, when an exclamation mark appears in the enhanced message, a melody can be played. A simple black and white image could be displayed alongside some text and this sound effect.

Mobile Lifestreams are renowned as experts on messaging in general, particularly Short Message Service (SMS) in particular and believe that EMS and MMS will be essential next generation messaging technologies. In fact, if you can't find the information you need here please feel free to contact our messaging expert at [messaging@mobilelifestreams.com](mailto:messaging@mobilelifestreams.com)

**Research Report**

Mobile Lifestreams produces two messaging reports written by research expert Simon Buckingham. These are "Success 4 SMS" about text messaging (published June 2000, [click here](#) for full details) and "Next Messaging: From SMS to EMS to MMS" (forthcoming, [click here](#) for full details).



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## MMS Overview

The Multimedia Messaging Service (MMS) is as its name suggests the ability to send an messages comprising a combination of rich media including text, sounds, images and video capable handsets.

As detailed in its "[Data on MMS](#)" report, Mobile Streams believes that:

The transition from Short Message Service (SMS) to Multimedia Messaging Service (MMS) is as important on mobile phones as the transition from DOS to Windows was for the PC. It represents a revolution.

MMS presents a revolution to the end user in terms of the richness of the messaging services, it is delivered in an evolutionary manner from the infrastructure suppliers point of view. Infrastructure vendors will be reusing components from existing SMS, email, Unified Messaging and other platforms. As such, MMS is simply a presentation layer for email that leverages developments made in these areas and allows multiple standardized access to messages.

MMS will be the first mobile messaging service to embrace the open Internet standards for messaging. In SMS, proprietary interfaces and architectures were commonplace because the Internet Protocol and the Internet itself had not yet been developed.

There will be many MMS infrastructure vendors including all the incumbent mobile value-added platform suppliers such as SMS Center vendors and all the mobile network infrastructure vendors. Market shares will be more distributed as competition in all areas of the mobile value chain increases but the size of the market will be substantially larger too.

Value and revenues will migrate to the application developers, service providers and content providers who can keep the services fresh and current and novel for end users who will get their services from a variety of different Internet sites- and certainly not one portal or provider. Increasingly, vendors will offer content and services and infrastructure suppliers will offer applications.

### **Content is king and self-created content will be the richest content.**

The i-mode service from NTT DoCoMo that is already operating in Japan is the clearest example of how MMS services will look and be used in terms of terminals, services, service delivery (Java), web sites, content sites and business models- NTT DoCoMo earns 9% of the total revenues from these services, the content provider earns the rest. In Europe currently, the reverse is true (see [www.mobileimode.com](http://www.mobileimode.com) from Mobile Streams for more information).

The success of MMS is linked to the allocation of revenue shares divided between members of the value chain in a fair way according to efforts and responsibilities.

### **MMS Success= Entertainment + Still Images + Person to Person.**

Still images such as mobile pictures, photos, postcards, screensavers, autographs, personalization, presentations, business cards, card trading, letters, telegrams, telexes and fax cards are expected to be the major application area in MMS.

Mobile Streams has a skeptical view on the potential for stand-alone Unified Messaging service.

The Multimedia Messaging Service (MMS) is the key business case driver for GPRS (General Packet Radio Service, see [www.mobileGPRS.com](http://www.mobileGPRS.com) from Mobile Streams) and is also the central driver for the 3G business case (Third Generation, see [www.mobile3G.com](http://www.mobile3G.com) from Mobile Streams) and will contribute a huge amount to earning a return on 3G investments. MMS is more important than other buzzwords such as mobile commerce and mobile location, which are both secondary enablers of transactions. Indeed, location with MMS will be about one person telling another that they are in a certain place by sending them a photo of that place taken with the digital camera on their terminal.

Many of the features and utilities that are routinely used on PCs today such as screen personalization of desktops, viruses, plug-ins and the like will migrate over to the mobile phone.

The Multimedia Messaging Service (MMS) has several key technical features:

MMS is a service environment that allows different kinds of services to be offered, especially network services that can exploit different media, rich media, multimedia and multiple media.

MMS will enable messages to be sent and received using lots of different media including text

audio and video.

As new more advanced media become available, more content rich applications and services offered using the MMS service environment.

The Multimedia Messaging Service (MMS) introduces new messaging platforms to mobile networks in order to enable MMS. These new platforms have been designed to interact with legacy platforms such as SMS Centers. The new platforms include MMS Relay(s) and MMS User Data

MMS will require not only new network infrastructure but new MMS compliant terminals. MMS may not be compatible with old terminals, which means, that before it can be widely used, MMS terminals must reach a certain penetration, and that will take at least a couple of years.

MMS is like SMS a non-real time service- a relay platform routes multimedia messages between Servers.

The Multimedia Messaging Service (MMS) is designed to be future proof. As mobile networks and new media become available, the aim is to make the standards as backwards and forwards compatible as possible.

Access to MMS services should be independent of access point- multimedia messages should be accessible through 3G and 2G mobile networks, fixed networks, the Internet etc. This common message stores will be an important enabling technology. To facilitate interoperable universal messaging access, MMS will comply with Virtual Home Environment (VHE). VHE is a service that simply lets customers have seamless access with a common look and feel to their services from home, office or on the move and in any city as if they were at home. The Virtual Home Environment (VHE) permits the user to manage his services (including non-realtime messaging handling) via a user profile, permitting, for example, all different types of messages to be presented to the user in a unified and consistent manner.

MMS supports multiple rich media and it is therefore important that the concept of a user profile has been included. This user profile is stored in the mobile network and is user defined and manages access to the Internet and determines which multimedia messages are downloaded immediately to the terminal which are left on the server for later collection. The user may also choose to receive notifications for certain multimedia message types.

Although MMS is being standardized by the 3GPP, in fact MMS services can be offered over General Packet Radio Service, so called 2.5G networks.

Terminal Capability Negotiation (User Agent Profile).

Content Scaling (e.g. downscaling of images) and Content Transformation (e.g. converting audio format into another).

These features and platforms are described in the 3GPP specifications and the full "Data Report".

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# Enhanced Messaging

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## An Introduction to the Enhanced Messaging Service

The Enhanced Messaging Service (EMS) is the ability to send operator logos and other simple visual messages to EMS capable additionally the ability to send and receive a combination of simple melodies, pictures, sounds, animations, modified text and stand integrated message for display on an EMS compliant handset.

The Enhanced Messaging Service (EMS) is a standard developer Generation Partnership Project (3GPP) to embrace and extend the ringtones and operator logos and other simple visual messages to handsets and additionally the ability to send and receive a combination media such as melodies, pictures, sounds, animations, modified text as an integrated message for display on an EMS compliant handset. For example, an exclamation mark appears in the enhanced message, a melody could be displayed along with some sound effect. As such, EMS has two main applications: person to person and phone personalization.

New phones supporting EMS are needed. Support for EMS is widespread among terminal manufacturers such as Ericsson, Alcatel, Siemens and Motorola.

However, network modifications to support EMS are minimized. The Enhanced Messaging Service (EMS) has been standardized by extending the established and widely used User Data Header (UDH) common in SMS. This makes it possible to include binary data in a normal short message itself. EMS is an enhancement to SMS but is very similar to the use of using the store and forward SMS Centers, the signaling channel to realize EMS. EMS has little or no impact on today's SMS Centers. The use of EMS should be totally transparent to SMS Centers since they already use the User Data Header. This is a key advantage to EMS- the fact that network operators need make no additional investments to SMS Centers or network modifications providing their networks already support binary 8 bit messaging. As message volumes mean investment in new SMS Center capacity modification to existing SMS Centers would be in the case that if network operators wanted to charge differently for EMS- in such a case, they would need to record the relevant technical values and generate Call Detail Records for billing purposes accordingly. Some network operators have been investigating whether they can change their charging policy for EMS. They would like to charge for one enhanced message, instead of several SMS. One EMS can be made up of several short messages.

Initially, EMS will be like smart messaging in terms of user trends. Initially, people will use websites and premium rate services to request operator logo for their phone. In such cases, how many other EMS services that are out there is largely irrelevant- all that matters is that the ability to participate in the whole cool ringtones services world. In the future, as EMS devices ship from several vendors in large volumes, EMS transactions will involve person to person messaging, like SMS. People will use the simple media extensions to EMS as a means to send more creative text messages to each other. This later person to person capabilities

was originally designed for, unlike Smart Messaging which only forwarding of picture messages from phone to phone.

The sender of an enhanced message composes the message compliant device. Text can be entered by the EMS user who decides to insert other media such as pictures or sounds. In practice, it will to design an intuitive user interface for enhanced message comp handset which may only be able to store a few basic images. vendors believe that the majority of the enhanced messages will be in the phones because nowadays, even the low-end phones have displays. Early indicators are however that the picture editors in E difficult to use, hence composition of enhanced messages is likely principally something that is driven from Internet sites.

If an enhanced message is sent to a handset that does not support might well be a problem because EMS messages may be binary encoded phones might fail to display those EMS messages at all. In the case textual representation of EMS data and corresponding user data message would show garbage text fragments making no sense to This is exactly what happens when you send a Nokia smart message handset today. Non binary EMS messages sent to a non EMS handset messages containing text formatting but not pictures or animation displayed as plain text, depending on handset vendor implementation 3GPP standards do not currently require non-EMS handsets to implement that help render incoming EMS as normal text messages. This illustrates the need for an intelligent converter that helps to represent with enhanced text formatting in a way suitable for legacy, non-EMS

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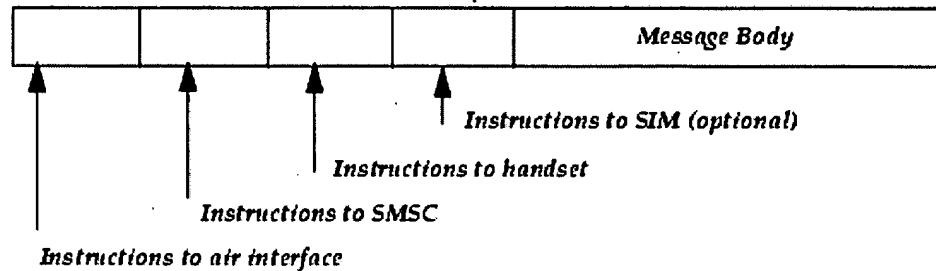
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## Short Message Data Structure

A short message is formally known as a Protocol Data Unit (PDU) and comprises two parts - the header information and the short message text itself (known as the user data). This short message is sent to the SMS Center that looks at the details on the header and tries to send the message to the recipient using the type of postal service the sender specified.



The header contains the following parameters:

### SMSC Address

The address of the SMS Center to which the short message is to be sent.

### Destination Address

The Destination Address field denotes the final recipient of the short message. This parameter is usually specified by the sender.

### Originating Address

The address of the sender of the short message. Usually automatically appended to the short message itself so that the recipient can identify the sender.

### Status Report Request

This parameter allows the short message sender to request confirmation that the short message has been delivered to its intended recipient.

### Service Center Timestamp

In addition to the short message text itself and the Originating Address, the time and date that the SMS Center received the

short message are usually also automatically appended to outbound short messages from the SMS Center.

### Validity Period

Each short message submitted to the SMS Center is assigned a Validity Period, which sets the maximum time that the short message is retained in the SMS Center. Failure to successfully deliver the short message within the short message lifetime causes it to be marked for purge, with no further delivery attempts made.

Setting specific short message Validity Periods is important for many SMS-based applications. Some SMS Centers can inform software applications as soon as a short message lifetime expires, allowing alternative, secondary action to be taken.

All short messages have a message lifetime - those short messages that do not have a specific value when submitted are automatically assigned the default Validity Period for that mobile network. For example, some mobile network operators set a maximum short message lifetime of 72 hours (Vodafone, UK) or 48 hours (Vodafone D2, Germany), after which any short messages that haven't been delivered are deleted.

### Data Coding Scheme

The Data Coding Scheme (DCS) parameter is used for several purposes, including the following:

- Indicate the form in which the short message text (user data) is encoded, be it the GSM 7-bit default alphabet, 16-bit text or binary.
- Specify short message classes, which tell the mobile phone how to deal with the short message. For example, the Data Coding Scheme flag is used to indicate whether to store the short message in the SimCard or memory, send it directly to the display or to Terminal Equipment attached to the mobile phone.
- Allow a receiving Short Message Entity to display an icon associated with a short message, such as an email or voice mail icon.
- Indicate that a short message is compressed.

The Data Coding Scheme values are described in GSM 03.38. How or if they are supported depends



on the specific mobile phone. Network support of the DCS parameter also varies- application developers and users should check with their network operator to see which if any uses of the DCS are allowed.

### **Protocol Identifier**

Another flag that is used for a wide variety of purposes is the Protocol Identifier (PID).

The PID determines how the short message should be handled by the receiving entity or the SMS Center. Uses of the Protocol Identifier include:

- Routing short messages to the correct outbound interface. This is useful when several interfaces share the same numbering plan (e.g. PSTN fax and voice). Use of the Protocol Identifier indicates to the SMS Center where to send the short message to maximize the likelihood that it is successfully delivered to its intended Destination Address.

Routing by Protocol Identifier is, for example, used in the provision of SMS to Fax services, through which a mobile phone user can send a short message to a fax machine. The SMS Center recognizes that the Protocol Identifier indicates an SMS to Fax message and routes the short message to the module within the SMS Center that incorporates fax outdial, or an SMS to Fax platform resident outside the SMS Center itself .

- Indicating that a mobile phone receiving a short message should check to see if a short message of the same type is currently stored and if so replace it with the new one.

### **Reply Path**

The Reply Path allows a user to indicate to the receiver that a reply to the short message is requested. When the recipient chooses to reply to a short message, the SMSC Address from which the short message came is used instead of the SMSC Address stored on the SimCard. Additionally, the Originating Address from which the short message came is automatically used as the Destination Address.

This feature was incorporated to indicate to the SMS Center that the initial sending entity should be

charged for the reply rather than the replying entity. The advantage is that someone sending a message can receive a reply even if the recipient of the short message has not got an SMS Center number programmed into his or her SimCard.

Many mobile phones allow a recipient to reply to a short message irrespective of the setting of the Reply Path parameter in the received short message. In such cases, the SMS Center and Originating Address translation described above is also applied.

#### **Message Reference**

An identifier (1- 255) which is incremented with each short message sent.

#### **Message Length**

Indicates the length of the short message.

#### **Reject Duplicates**

The Reject Duplicates parameter allows a sender to indicate to the SMS Center that a short message with the same Message Reference as one already stored in the SMS Center for the same Destination Address should be discarded and replaced by the new one.

#### **User Data Header Indicator**

The User Data Header Indicator allows a sender to indicate that the short message text itself (the user data) is in a special format of the types defined in GSM 03:40 such as SMS concatenation.

#### **SMS Commands**

Some mobile phones allow the sender to send specific instructions to the SMS Center to carry out operations on previously submitted short messages. For example, different command types allow the user to inquire about the status of a short message or delete a short message that is waiting to be delivered.

#### **Message Type Indicator**

The Message Type Indicator parameter indicates whether a short message is for sending, receiving, is a status report (confirmation of delivery), or a specific command to the SMS Center such as an enquiry on a short message. A user does not normally have control over this parameter from the mobile phone keypad.

Some of these parameters are added by the mobile network entities and some are accessible by the originator of the short message. A default value for all of these parameters except the Destination Address is usually built into the application software, the SMS Center and mobile phone.

Different combinations of these Short Message Data Structure parameters are formed depending on what SMS-related action is being carried out. For example, the Validity Period parameter is only set when submitting short messages. Some of the Short Message Data Structure parameters are optional and some are mandatory. The presence and order of the parameters for different types of short message transactions are defined within GSM 03:40.

The user data plus the other parameters is collectively known as the Protocol Data Unit (PDU) or SMS-TPDU (SMS-Transport Protocol Data Unit). There are several different types of PDU, each of which contains different parameter combinations. For example, the Submit PDU is the format sent by the originating Short Message Entity to send a short message. The Deliver PDU is the format presented to the receiving message. The Command PDU is the format sent by the originating SME to request an action on previously submitted but not yet delivered short messages. The Status Report PDU indicates the status of a previously submitted short message to the originating SME (for example, confirming successful delivery to the Destination Address).